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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Toshihiko ARIYOSHI, et al.

Appln. No.: 10/092,449

Confirmation No.: 1421

Filed: March 08, 2002

For: REFLECTION TYPE LIQUID-CRYSTAL DISPLAY APPARATUS

Docket No: Q68880

Group Art Unit: 2871

Examiner: Richard H. KIM

SUBMISSION OF APPELLANT'S BRIEF ON APPEAL

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
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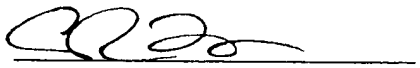
Sir:

Submitted herewith please find an original and two copies of Appellant's Brief on Appeal. A check for the statutory fee of $330.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,



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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

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Sir:

This is an Appeal from the final rejection of October 27, 2003 (Paper No. 8) of claims 1, 2 and 4-8 in Application No. 10/092,449. In accordance with the provisions of 37 C.F.R. § 1.192, Appellant submits the following:

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Nitto Denko Corporation. Assignment of the application was submitted to the U.S. Patent and Trademark Office on March 8, 2002, and recorded on the same date at Reel 012682, Frame 0226.

II. RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1, 2 and 4-8 are pending in the application with claim 1 being in independent form. As set forth in the Office Action dated October 27, 2003, claims 1, 2, 7 and 8 and are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bao et al. (U.S. Patent No. 6,266,108; hereafter "Bao") in view of Mamiya et al. (U.S. Patent No. 5,764,332; hereafter "Mamiya") and Mashino et al. (U.S. Patent No. 5,886,759; hereafter "Mashino"). Claims 4-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bao in view of Mamiya, Mashino and Sanai et al. (U.S. Patent No. 5,029,045; hereafter "Sanai"). All of the rejected claims are set forth in the attached Appendix.

IV. STATUS OF AMENDMENTS

No claim amendments were requested subsequent to the October 27, 2003 Office Action. The Request for Reconsideration filed February 27, 2004 is believed to be of record.

V. SUMMARY OF THE INVENTION

The present invention is directed to a reflection type liquid-crystal display apparatus having a light source in the system in which light is led in from a direction of the thickness of the apparatus. (page 1, lines 10-13). As shown in Figure 1, a reflection plate 6 is provided on the lower surface of a lower substrate 53. A lower transparent electrode (not shown) is provided on the upper surface of the lower substrate 53. An upper transparent electrode (not shown) is formed on the lower surface of an upper transparent substrate 51. Liquid crystal 52 interposed between the lower and upper transparent electrodes opposite to each other and surrounded by a seal 54. A polarizer 4 and a light guide film 2 are provided successively on the upper transparent substrate 51 through adhesive layers. (page 6, line 10 - page 7, line 3).

An illuminator includes a light source 11, and a reflection sheet (reflector) 12. The light source 11 is disposed along a side end surface of the upper transparent substrate 51 so that illumination light is made incident on the side end surface of the upper transparent substrate 51. The reflection sheet 12 is disposed to envelop the light source 11 so that light generated by the light source 11 can enter the upper transparent substrate 51 efficiently. The end portion of the upper transparent substrate 51 on which illumination light is incident is protruded more than a corresponding end portion of the lower substrate 53 to thereby form a protruded end portion. The light source 11 is disposed along the protruded end portion. Opposite end portions of the reflection sheet 12 disposed so as to cover the light source 11 are attached closely to upper and

lower surfaces in the protruded end portion of the upper transparent substrate 51 to thereby prevent light leakage. (page 7, lines 5-20).

A reflection sheet 3 is disposed onto at least one (preferably three) of the end surfaces except the end surface on which the light source 11 is disposed, so that the end surface(s) is (are) covered with the reflection sheet 3. (page 7, line 22 - page 8, line 1).

As shown in Figure 2 (a second embodiment of the invention), a reflection sheet 3 is stuck to an inner surface of a frame 7 through an adhesive agent. The liquid-crystal display device 8 is inserted in the frame 7 in such a direction that the light source 11 is protruded more than the frame 7. The liquid-crystal display device 8 is fixed by a transparent adhesive agent. (page 8, lines 17-25).

VI. ISSUES

Whether claims 1 and 8 were erroneously rejected under 35 U.S.C. § 103(a) as being unpatentable over Bao in view of Mamiya and Mashino?

VII. GROUPING OF CLAIMS

The claims of the present application may properly be considered in two groups that are separately patentable and therefore do not stand or fall together.

The proper grouping of the claims is as follows:

Group 1: Independent claim 1 and dependent claims 2 and 4-7 stand or fall together.

Group 2: Dependent claim 8 stands alone.

VIII. ARGUMENTS

As an initial matter, Appellant acknowledges that all of the claims relate a reflection type liquid crystal display apparatus. However, as set forth below, each group is separately patentable because of the limitations therein, and therefore they do not stand and fall together.

Group 1: Independent claim 1 and dependent claims 2 and 4-7 stand and fall together as they recite "an end portion of said upper substrate is protruded more than a corresponding end portion of said lower substrate so that said light source is disposed on said protruded end surface of said upper substrate."

Group 2: Dependent claim 8 stands alone as it also recites "an end portion of said polarizer is protruded more than a corresponding end portion of said lower substrate so that said light source is disposed on said protruded end surfaces of said upper substrate and said polarizer."

A. Claims 1, 2 and 4-7 (*Group 1*) are Patentable Over the Prior Art.

Independent claim 1 is directed to a reflection type liquid-crystal display apparatus comprising a light source and a liquid-crystal display device. Claim 1 recites that the liquid-crystal display device includes:

> a lower substrate provided with a reflection plate, an upper substrate provided with a transparent film on which a light-reflecting element is provided for

> reflecting transmitted light toward the lower substrate side, and liquid crystal held between said lower substrate and said upper substrate, said light source being disposed at an end surface of said upper substrate, said liquid-crystal display device being configured so that light incident onto a surface of said upper substrate opposite to a contact surface of said upper substrate with said liquid crystal is reflected by said reflection plate of said lower substrate so as to exit from said surface of said upper substrate opposite to said contact surface of said upper substrate with said liquid crystal ....

Claim 1 further requires "an end portion of said upper substrate is protruded more than a corresponding end portion of said lower substrate so that said light source is disposed on said protruded end surface of said upper substrate."

Appellant respectfully submits that that the claimed invention would not have been rendered obvious in view of the combination of Bao, Mamiya and Mashino because the cited references do not teach or suggest at least the end portion of the upper substrate on which the light source is disposed is protruded more than the corresponding end portion of the lower substrate, as required by claim 1, and one of ordinary skill in the art would not have been motivated to modify the combined references to include this feature the claimed invention.

As set forth on pages 3 and 4 of the October 27, 2003 Office Action, the Examiner correctly concedes that Bao, Mashino and Mamiya do not disclose the end portion of the upper substrate on which the light source is disposed is protruded more than the corresponding end portion of the lower substrate. However, the Examiner cites Mamiya allegedly "disclos[ing] an end of a lower substrate is protruded more than a corresponding end portion of the upper

substrate so that the light source is disposed on the protruded end surface of the lower substrate (see Fig. 8, ref. 122)." Further, the Examiner asserts that:

> [i]t would have been obvious ... to have the end portion of the upper substrate protruded more than a corresponding end portion of the lower substrate so that the light source is disposed on the protruded end surface of the upper substrate in order to have the light source in close proximity to the transparent film, thereby allowing light to be transmitted through the film while minimizing coupling loss.

In support of this position, the Examiner further asserts "that whether the upper substrate is longer than the lower substrate or vice versa, typically the substrate with the light source is longer than the other one, as evident i[n] Fukiharu (US 6,603,519 B2) ..., and distinguishing between the two is obvious."[1] (pages 6 and 7 of the October 27, 2003 Office Action).

Appellant respectfully submits that one of ordinary skill in the art would not have been motivated to modify the display device of Bao based on the teachings of Mashino and Mamiya or the knowledge generally available to one of ordinary skill in the art, so that an end portion of the upper substrate is protruded more than a corresponding end portion of the lower substrate.[2]

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[1] It is unclear whether Examiner is officially relying on Fukiharu in support of the rejection since Fukiharu not included in the statement of the rejection. Similarly, it is unclear whether the Examiner is taking official notice with regard to the assertion that "typically the substrate with the light source is longer than the other one."

[2] It is well settled that in order establish a *prima facie* case of obviousness under 35 U.S.C. § 103, there must be some suggestion or motivation to modify or combine the reference teachings. "To support the conclusion that the claimed invention is directed to obvious subject matter, either references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the reference." *Ex parte Clapp* 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Firstly, Appellant respectfully submits that the Examiner has mischaracterized the teaching of Fukiharu. In particular, Fukiharu does not teach or suggest that that the upper substrate of the liquid crystal display protrudes further than the lower substrate of the liquid crystal display (or vice versa), as the Examiner alleges. Rather, Figure 5 of Fukiharu shows a front lighting unit 100 includes a light conductive member 101 and a light source 105 disposed on a side surface of the light conductive member 101, wherein the light conductive member 101 is longer than (protrudes from) a liquid crystal panel 401 (which includes substrates not specifically shown) on which the light conductive member 101 is disposed. That is, nowhere does Fukiharu disclose that the one of the substrates of the liquid crystal panel protrudes from the liquid crystal panel, or that the light source is disposed on one of the substrates of the liquid crystal panel, as alleged by the Examiner.

On page 2 of the March 18, 2004 Advisory Action, the Examiner again asserts that the teachings of Fukiharu indicate that the upper substrate 101 of the liquid crystal panel 401 protrudes more than a corresponding end portion of the lower substrate. However, element 101 is not a substrate of the liquid crystal panel 401 but rather is a light conductive member 101 of a front lighting unit 100 which disposed on the liquid crystal panel 401. Although the substrates included in the liquid crystal panel 401 are not specifically identified in the drawings, the drawings would appear to indicate that the end portions of the substrates of the liquid crystal panel 401 are aligned due to the symmetry of the sides of the liquid crystal panel 401.

Thus, Appellant respectfully submits that the Examiner's assertion that "typically the substrate with the light source is longer than the other one" is not supported by the teachings of Fukiharu.

In addition to the Examiner's improper characterization of the teachings of Fukiharu, Appellant respectfully submits that the Examiner's statement on page 4 of the Office action regarding the alleged motivation for modifying the display device of Bao is incorrect since protruding an end portion of the upper substrate which more than a corresponding end portion of the lower substrate would not necessarily facilitate placement of the light source in closer proximity to the upper substrate or minimize coupling loss as compared to the case where the end portion of the upper substrate is aligned with the corresponding end portion of the lower substrate. That is, whether an end portion of a substrate is protruded or aligned with respect to another substrate has no bearing on how close the light source can be placed to the substrate (i.e., the light source could simply be moved closer to the substrate).

In March 18, 2004 Advisory Action, the Examiner again argues that protruding an end portion of the upper substrate more than a corresponding end portion of the lower substrate would facilitate placement of the light source in closer proximity to the upper substrate in Bao because, "as indicated in Figure 1, a greater protrusion of the upper substrate than the lower substrate would close the gap between the substrate and the light source, therefore minimizing coupling loss" (emphasis added). However, although the drawings of Bao show the light source 30 is separated from the light guide plate 20, the drawings are not to scale and do not show the

side end surfaces of the light guide plate 20 or the display device (note the wavy side surface of the display device), such that as a practical matter the light source 30 would typically be coupled directly to the light guide plate 20.

It is well settled, the characterization of certain limitations or parameters as obvious does not make the claimed invention, considered as a whole, obvious. It is also incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This burden can only be satisfied by an objective teaching in the prior art or by cogent reasoning that the knowledge is available to one of ordinary skill in the art. See *In re Lalu*, (747 F.2d 703, 223 U.S.P.Q. 1257 (Fed. Cir. 1984)). Furthermore, an Examiner may not rely on official or judicial notice at the exact point where patentable novelty is argued, but must come forward with pertinent prior art. See *Ex parte Cady*, 148 U.S.P.Q. 162 (Pat. Off. Bd. App. and Inter. 1965).

In the present case, Appellant respectfully submits that the Examiner has not provided any objective reasoning why one of ordinary skill in the art would have been motivated to combine and modify the cited references or point out any portion of the cited references which suggests the desirability of modifying the reference teachings.

Accordingly, Appellant respectfully submits that independent claim 1, as well as dependent claims 2 and 4-7, should be allowable because the cited references, alone or in combination, do not teach or suggest all of the features of the claims, and one of ordinary skill in

the art would not have motivated to combine and modify the reference teachings to produce the claimed invention.

B. Claim 8 (*Group 2*) is Patentable Over the Prior Art.

In addition to the limitations recited in independent claim 1, dependent claim 8 recites "a polarizer is disposed on said surface of said upper substrate opposite to said contact surface of said upper substrate with said liquid crystal" (claim 7) and "an end portion of said polarizer is protruded more than a corresponding end portion of said lower substrate so that said light source is disposed on said protruded end surfaces of said upper substrate and said polarizer."

Appellant respectfully submits that none of the cited references teaches or suggest the subject matter of dependent claim 8. Although the Examiner (pages 4 and 5 of the October 27, 2003 Office Action) alleges that Mamiya discloses the claimed polarizer of claim 8 via the polarizing plate 116 shown in Figure 8, the polarizing plate 116 is not protruded more than a corresponding end portion of either substrate 120, 122 of the liquid crystal display panel 100, and the light source 114 is not disposed on an end surface of the polarizing plate 116.

Accordingly, in addition to the reasons set forth for claim 1, Appellant respectfully submits that dependent claim 8 should be allowable because the combined references do not teach or suggest that an end portion of the polarizer is protruded more than a corresponding end portion of the lower substrate so that the light source is disposed on the protruded end surfaces of the upper substrate and the polarizer.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: May 28, 2004

Attorney Docket No.: Q68880

APPENDIX

CLAIMS 1, 2 AND 4-8 ON APPEAL:

1. (Previously Presented) A reflection type liquid-crystal display apparatus comprising:

a light source; and

a liquid-crystal display device including a lower substrate provided with a reflection plate, an upper substrate provided with a transparent film on which a light-reflecting element is provided for reflecting transmitted light toward the lower substrate side, and liquid crystal held between said lower substrate and said upper substrate, said light source being disposed at an end surface of said upper substrate, said liquid-crystal display device being configured so that light incident onto a surface of said upper substrate opposite to a contact surface of said upper substrate with said liquid crystal is reflected by said reflection plate of said lower substrate so as to exit from said surface of said upper substrate opposite to said contact surface of said upper substrate with said liquid crystal,

wherein at least one of end surfaces of said upper substrate except the end surface on which said light source is disposed is coated with a reflection layer, and

wherein an end portion of said upper substrate is protruded more than a corresponding end portion of said lower substrate so that said light source is disposed on said protruded end surface of said upper substrate.

2. (Original) A reflection type liquid-crystal display apparatus according to claim 1, wherein said reflection layer is constituted by a selected one of a reflection film, a reflection sheet and a reflection plate stuck onto said end surface.

3. Canceled

4. (Original) A reflection type liquid-crystal display apparatus according to claim 1, wherein said reflection layer is provided on an inner surface of a frame so that at least one end surface of said liquid-crystal display device is disposed closely on said frame.

5. (Original) A reflection type liquid-crystal display apparatus according to claim 4, wherein a selected one of a reflection film, a reflection sheet and a reflection plate is stuck onto said inner surface of said frame.

6. (Original) A reflection type liquid-crystal display apparatus according to claim 4, wherein said inner surface of said frame is made of a metal plate having a light-reflecting function.

7. (Original) A reflection type liquid-crystal display apparatus according to claim 1, wherein a polarizer is disposed on said surface of said upper substrate opposite to said contact surface of said upper substrate with said liquid crystal.

8. (Previously Presented) A reflection type liquid-crystal display apparatus according to claim 7, wherein an end portion of said polarizer is protruded more than a corresponding end portion of said lower substrate so that said light source is disposed on said protruded end surfaces of said upper substrate and said polarizer.